ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Plant Abstract **Element Code:** PDBOR0A2R0
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Cryptantha semiglabra* Barneby
COMMON NAME: Fredonia catseye, Pipe Springs cryptantha, smooth catseye, smooth cryptantha
SYNONYMS: *Cryptantha semiglabrata* Barneby (in McDougall 1973)
FAMILY: Boraginaceae

AUTHOR, PLACE OF PUBLICATION: R.C. Barneby, Leaflets of Western Botany 3(9): 197-199. 1943.

TYPE LOCALITY: On detrital clay hills about 2 miles east of Fredonia, Coconino County, Arizona, United States of America.

TYPE SPECIMEN: HT: CAS 300408. Ripley and Barneby 4363, 6 May 1942. T: CAS 300409. Ripley and Barneby 4829, 5 June 1942. Syntype: GH (for locality and both dates by Ripley and Barneby).

TAXONOMIC UNIQUENESS: There are around 100 species in the genus *Cryptantha*, which is restricted to North and South America, and 35 species of this genus in Arizona. Most species in this genus are found in the western United States. USDA, NRCS (2004) reports 115 species in genus.

DESCRIPTION:

Non-technical: A coarse perennial herb that has large white flowers with yellow centers. Inflorescences can be up to 12 cm (5 in) long. The floral tube considerably surpasses the calyx. The seeds are in the form of nutlets, which are smooth and shiny. The stems toward the base are densely covered in straight, silky hairs, which lay flat against the stems. The upper stems have stiff hairs, which are spreading or straight and lying flat against the stems. The upper surface of the leaves is hairless and shiny green, though the margins may be ciliate. The lower leaf surface is pubescent (Phillips et al. 1982).

Technical: Coarse perennial herb about 30 cm (12 in) tall with a woody root; base of stem and upper caudex subtomentose with long, fine, silky hairs; stems stigose to setose in inflorescence. Basal leaves oblanceolate, 3-7 cm (1.2-2.8 in) long and 3-6 mm wide; cauline leaves lanceolate, 3-5 cm (1.2-2.0

in) long and 3-6 mm wide, lower surface strigose, trichomes with pustular bases, upper surface glabrous or with a few appressed filiform hairs near hispid-ciliate margins. Inflorescence a long narrow thyrsus of pedunculate, few-flowered scorpioid racemes, greater than 10 cm (4 in) at maturity, leafy-bracted in lower half. Flowers white with yellow fornices, tube 9-12 mm, surpassing calyx, anther position on tube dimorphic. Nutlets are smooth and shiny, the margins thin and knife-like; style surpassing nutlets by 5-8 cm (Barneby 1943, Cronquist et al. 1984, Phillips et al 1982).

AIDS TO IDENTIFICATION: *Cryptantha semiglabra* is most similar to *Cryptantha flava* and *Cryptantha capitata*. The flowers of all three species are white with yellow fornices. *C. semiglabra* can be easily distinguished from *C. flava* by nutlet shape and the amount of hair present on the leaves. *C. semiglabra* nutlets are broadly ovate, while those of *C. flava* are lanceolate to narrowly ovate. Both sides of the leaves of *C. flava* are hairy, while those of *C. semiglabra* are hairless on the upper surface and pubescent on the lower surface. *C. semiglabra* can be distinguished from *C. capitata* by the amount of hair on stems and leaves and by the habit of the inflorescence. The stems and leaves of *C. capitata* have more hair overall than *C. semiglabra* and the upper surface of the leaves of *C. capitata* is not glabrous, as in *C. semiglabra*. The inflorescence of *C. capitata* is often strongly capitate, unlike that of *C. semiglabra*. Another similar species that occurs in the area, *C. confertiflora*, has yellow flowers (Cronquist et al. 1984, Phillips et al. 1982).

ILLUSTRATIONS: Color slide (Frank W. Reichenbacher 1984, deposited at AGFD, HDMS).
Line drawing (Cronquist et al. 1984: 233).
Line drawing (USFWS).
Color photo (James L. Reveal *in* http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=CRSE4)

TOTAL RANGE: Coconino and Mohave counties, Arizona, and southeast Washington County, Utah.

RANGE WITHIN ARIZONA: Extreme northwestern Coconino County and adjacent extreme northeastern Mohave County, in the area surrounding the town of Fredonia.

SPECIES BIOLOGY AND POPULATION TRENDS

GROWTH FORM: Perennial herb subshrub/shrub.

PHENOLOGY: Flowers and sets seed from May to June.

BIOLOGY: During the 1981 status survey field research, seedlings, non-reproductive, pre-reproductive, and reproductive plants were observed. The number of reproductive

flowering stalks per plant varied from 1 to 9. An average of 27.5% were seedlings, 35% were non-reproductive, and 37.5% were reproductive (Phillips et al. 1982).

HABITAT: Arid red detrital clay soils and gray shales of the Moenkopi Formation, in the Great Basin Desertscrub biotic community.

ELEVATION: 4,600-4,900 ft (1402-1495 m) in Arizona (Phillips et al. 1982), and 4,920-5,674 ft (1500-1730 m) in Utah (Welsh et al. 1993).

EXPOSURE: All.

SUBSTRATE: Red detrital clay soils and gray shales of the Moenkopi Formation. Loose or non-compacted soils with 10-20% rock content (Phillips et al. 1982).

PLANT COMMUNITY: Great Basin Desertscrub community (in Arizona). Associated species (in Arizona) include: *Abronia nana* (), *Amelanchier utahensis* (), *Artemesia bigelovii* (), *Asclepias latifolia* (), *Atriplex confertifolia* (), *Bromus rubens* (), *Bromus tectorum* (), *Chrysothamnus greenei* (), *Chrysothamnus nauseosus* (), *Comandra pallida* (), *Cryptantha confertiflora* (), *Cryptantha flava* (), *Ephedra torreyana* (), *Eriogonum corymbosum* (), *Eriogonum fasciculatum* (), *Gutierrezia sarothrae* (), *Hilaria jamesii* (), *Lepidium fremontii* (), *Oryzopsis hymenoides* (), *Pediocactus sileri* (), *Purshia mexicana* (), *Rhus trilobata* (), *Salsola iberica* (), *Salvia dorrii* (), *Stanleya pinnata* (), and *Yucca angustissima* (). In Utah this species is found in Great Basin Desertscrub (including Sagebrush series) communities and Great Basin Conifer Woodland (Pinyon-Juniper) communities (Brown 1994, Phillips et al. 1982, Welsh et al. 1993).

POPULATION TRENDS: Trends in populations are unknown. This species appears to be tolerant of disturbance (Phillips et al. 1982).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None (USDI, FWS 1996)
[3C USDI, FWS 1985]
[C2 USDI, FWS 1980]

STATE STATUS: None

OTHER STATUS: None

MANAGEMENT FACTORS: Disturbance to the habitat of this species currently occurs in the form of garbage dumping, off-road vehicle recreation, and trampling (Phillips et al 1982).

PROTECTIVE MEASURES TAKEN: None

SUGGESTED PROJECTS: Verify the presence of populations in areas where collections have been made. Search for additional populations in suitable habitats on the Moenkopi Formation.

LAND MANAGEMENT/OWNERSHIP: BIA – Kaibab Paiute Reservation; BLM - Arizona Strip Field Office; State Land Department; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

Albee, B.J. et. al. 1988. Atlas of the Vascular Plants of Utah. Utah Museum of Natural History. Occasional Publication No. 7. Pp: 613.

Barneby, R.H. 1943. Miscellaneous Diagnoses. Leaflets of Western Botany 3(9): 197-199.

Brown, D.E. ed. 1994. Biotic communities: southwestern United States and northwestern Mexico. University of Utah Press. Salt Lake City, Utah. 315 pp.

Cronquist, A., A.H. Holmgren, N.H. Holmgren, J.L. Reveal, and P.K. Holmgren. 1984. Intermountain Flora. Volume Four. New York Botanical Garden. New York. Pp. 230-235.

Harvard University Herbaria (HUH). 2001. Index of Botanical Specimens. Accessed: 6/10/2004, from http://brimsa.huh.harvard.edu/cms-wb/specimens.

Integrated Taxonomic Information System (ITIS). Retrieved 6/10/2004 from ITIS, http://www.itis.usda.gov.

Kearney, T.H. and R.H. Peebles with collaborators. 1951. Arizona Flora. Second Edition with supplement by C.T. Howell and E. McClintock and collaborators. 1960. University of California Press. Berkeley, California. Pp. 715-717.

McDougall, W.B. 1973. Seed Plants of Northern Arizona. The Museum of Northern Arizona. Flagstaff, Arizona. Pp. 401- 405.

Missouri Botanical Garden – TROPICOS, Nomenclatural Data Base. *Cryptantha semiglabra* Barneby. http://mobot.mobot.org/cgi-bin/search_vast. Accessed: 10 Jun 2004.

NatureServe Explorer: An online encyclopedia of life [web application]. 2002. Version 1.6. Arlington, Virginia, USA: NatureServe. Available: http://www.natureserve.org/explorer. (Accessed: May 05, 2004).

Phillips, A.M. III, B.G. Phillips, and N. Brian. 1982. Unpublished Status Report (*Cryptantha semiglabra*). U.S. Fish and Wildlife Service. Albuquerque, NM.

Reveal, J.L. Available: http://plants.usda.gov/cgi_bin/plant_profile.cgi?symbol=CRSE4.

SEINet. Herbairum Collections Search Result. Accessed 6/10/2004 at http://seinet.asu.edu/collections/list.jsp.

The Nature Conservancy. 1991. Unpublished Plant Characterization Abstract for *Cryptantha semiglabra.*

USDA, NRCS. 2004. The PLANTS Database, Version 3.5 (http://plants.usda.gov). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDI, Fish and Wildlife Service. 1980. Endangered and Threatened Wildlife and Plants: Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 45(242): 82500.

USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants: Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register 50(188): 39526-39527.

Welsh, S.L., N.D. Atwood, S. Goodrich, and L.C. Higgins, Eds. 1993. A Utah Flora. Second Edition. Brigham Young University. Provo, Utah. p. 80.

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ADDITIONAL INFORMATION:

In August of 1991, the Arizona Plant Recovery Team, recommended (during their meeting) to resurrect this species from Category 3C and place it in Category 2. All Arizona localities are within 7 miles of Fredonia. Only 1 collection was cited in A Utah Flora. The Brigham Young Science Bulletin, 16(3): 48-49, cites 1 specimen collected by J. W. Harrison (s.n.) DIX. This specimen was collected in the Galagers Hill area along the Hurricane-Kanab Road. Cronquist et al. (1984) state that this species is related to *Cryptantha capitata* and *C. pustulosa.*

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